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ARTICLE XXXIII.

DELAYED UNION OF FRACTURES, WITH CASES AND ILLUSTRATIONS;

THE SUCCESSEUL EMPLOYMENT OF MALGAIGNE'S SPIKE IN CONNECTION WITH DRILLING IN A CASE WHICH HAD PREVIOUSLY RESISTED DRILLING EMPLOYED BY ITSELF.

By DAVID PRINCE, M.D., of Jacksonville, Ill.

Read to the Illinois State Medical Society.

While fractures sometimes unite under the most adverse circumstances, at other times union is delayed or does not take place where the appearances are at first most favorable. This difference of results, independent of external circumstances, can only be accounted for by the assumption of constitutional differences of aptitude to bony formation. While ossification will sometimes extend through an inch or two of plasma, reaching from one fragment to another, the separation to the extent of one-fourth of an inch will at other times prevent the bony union of the fragments. While privation and starvation sometimes fail to retard union, there is in some constitutions a necessity for a liberal diet to afford the necessary stimulus to bony deposit. The antiphlogistic remedies for high inflammation, if continued unnecessarily long, may sometimes prevent union, while in other instances no practical amount of local or general reduction will interfere with bony formation. While, therefore, it is never safe to omit any of the conditions of success in the treatment

of fractures, the greatest number of unfavorable circumstances may be insufficient to cause failure if the ossific tendency be strong.

It is suspected that a fuller investigation will show that separation of the fragments to a distance of one-fourth of an inch or more from each other, and insufficiently nutritious diet at the period of from three to five weeks from the date of injury, are the most frequent causes of delay or absence of union. If this shall be affirmed by experience, it follows that the two most important points for the surgeon to attend to are, the apposition of the broken surfaces of the fragments, and the proper nourishment of the patient during the ordinary period of ossification. It must not be forgotten, however, that the extreme of fulness in diet may beget conditions of the system more dangerous and unwelcome than protracted non-union.

The delay having occurred, and the fragments remaining beyond the usual period, connected by soft callus of a greater or less degree of firmness, the treatment will at once suggest itself to secure local stimulation by frictions upon the skin, movement of the broken surfaces upon each other, a resort to more liberal diet, securing a better general health by exercise or exposure in the open air, and pressure upon the parts with reference to the approximation of the fragments when this is practicable, and when the delay may be suspected to depend upon the motion of the fragments upon each other, the diminution or arrest of this motion.

All these failing, some means of inducing more active capillary circulation with congestion or inflammation must be resorted to.

1. In the list of means to this end, is the passing of a seton through the callus between the fragments. This may be supposed to excite inflammation in all the parts immediately surrounding the seton, including the neighboring periosteum. As an important point of treatment is to get the action of ossification started somewhere, in order to favor the propagation of this action through the fibrinous material constituting the callus, the treatment is based upon intelligible physiological principles.

From the known tendency of long-continued inflammation in and near the periosteum, to induce bony deposit, it may be that Dr. Physick was right in retaining the seton a long time, with the result of a protracted congestion in the neighboring bone and periosteum. It may be in practice better to try the seton first for the short period, and, if that fails, to try it for the long period where this method of treatment is pursued.

2. The injection of some stimulating agent like iodine into or around the callus is founded on correct principles, but must be so extremely uncertain that in the possession of surer means it is not worth any further trials.

3. Electricity or galvanism passed through acupuncture needles introduced into the substance between the fragments, or in close proximity to them, can only be expected to succeed by exciting hyperæmia or inflammation.

4. Opening the parts, and scraping or sawing off the ends of the fragments, converts the case into one resembling compound fracture; but in very old cases, in which the false joint resembles a capsular ligament with its inclosed synovial membrane and cavity, this severe proceeding may be necessary. In any case in which the duration of the false joint is not measured by years, it is not easy to conceive this process to be necessary.

Dieffenbach's method of drilling and introducing ivory plugs, leaving them there to excite suppuration, can hardly be conceived better than the seton carried through the soft callus between the bones, while the risk of necrosis must be a strong objection to the proceeding.

6. Brainard's method of drilling through the solid bones and their intermediate soft callus, so practicing the operation as to permit the skin to slide over the opening when the drill has been withdrawn, has two theoretic recommendations. First, a very great disturbance of the particular portions of the bone drilled is effected, giving rise to the production of new plastic material for the formation of callus in the track of the drill, without the occurrence of suppurative inflammation. Suppuration here, as in the healing of other tissues, must be supposed to retard the union, though the active capillary circulation in the vicinity of its seat may result in subsequent ossification.

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The case may be thus stated: If the bony deposit can be induced by congestion or non-suppurative inflammation, it is more speedy than that brought about by suppurative inflammation. Yet there may be cases in which a long-continued inflammation with suppuration will induce the formation of bone after the failure of a shorter course of inflammation without suppuration.

In the cases in which there can be success by congestion or non-suppurative inflammation, suppuration is an evil retarding the result. In the other cases it is a necessary attendant upon the prolonged inflammation.

Second. When the operation results in the effusion of plastic lymph without suppuration, there are new centres of ossification in the chips of bone cut off by the drill. These are left in the track of the drill; some of them in the soft callus between the ends of the fragments.

That these minute fragments of bone become parts of the living tissue which organizes around them is certain; for, if they did not, they would, by the offensive emanations of dead bone, excite suppuration and work their way to the exterior. The importance of these little fragments cut off by the drill, as centres of ossification, may have received too little attention. As in crystallization, the introduction of a single minute crystal may be sufficient to start a process which is backward to commence without catalytic aid, so the process of ossification, when slow to begin, may be set in operation by a fragment of bone or periosteum imbedded in the plastic material. To obtain this advantage of the bony fragments it is, of course, necessary that suppuration in the track of the drill should be avoided.

7. Applying metallic wires around the fragments to approximate them and prevent lateral motion, answers an obvious indication. To apply a wire around the fragments, it is, however, necessary to convert the fracture into the condition of a compound fracture, and afterwards, when union has taken place, the wire is to be left in, or removed at the expense of much disturbance of the parts. If a silver, gold, or platinum wire becomes covered with organized lymph or granulations it can do no harm, and may be allowed permanently to remain.

8. Perhaps a bone might be drilled through both fragments

and held in apposition by a rivet of one of these metals. The presence of the rivet after the completion of the healing process would do no harm, and if a permanent discharge should be the result the metal could be readily removed.

9. Metallic points arranged for pressure on one or more of the fragments for the purpose of approximating them.

This expedient, where the nature of the parts makes it practicable, supplies an important indication. It accomplishes all that can be secured by the application of wires with more certainty, without extensively disturbing the soft parts, and the apparatus is easily tightened or loosened, increasing or diminishing the pressure, and is easily removed altogether.

Whether the separation of the fragments has been occasioned by the action of muscle or by the interposition of muscle or other material, the pressure will be constant, tending continually to approximate them.

Malgaigne's single spike for oblique fracture of the lower portion of the tibia is intended to prevent what it may afterwards be employed to remove, *i. e.*, a too wide separation of the fragments. In this apparatus the counter pressure is by means of a strap passing round the leg, including a splint, which distributes the pressure upon the back of the leg. In other cases the counter pressure must be by means of opposing points acting upon the opposed fragments, in order to bring them into close contact. Skill in making and adjusting the apparatus will be chiefly exercised in making it occupy sufficiently small space not to be in the way of placing the limb alternately in various positions while the process of union is going on.

Wherever the application of pressure by metallic points penetrating the soft parts and pressing the bony fragments together becomes necessary, it would have been important to apply them in the first place to bring the fragments into close contact and favor union by what is termed by PAGET *immediate union*, or by *primary adhesion*.

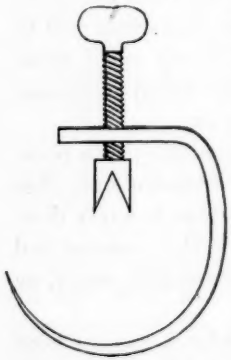
This is a new treatment, and the reason why it has not been adopted before this time is probably the repulsive appearance of the treatment to patients and friends. It is found by experi-

ence, however, that very little pain is occasioned by wearing for weeks a steel point, applied with considerable force, to the fragment to be held.

The treatment does not convert the fracture into the condition of a compound fracture, for the point can be applied at a sufficient distance from the place of fracture to avoid this complication. When, however, points have to be applied to opposite sides of the limb to act upon different fragments at the same time, they must be nearly or quite opposite each other; but as it is only in oblique fractures that the treatment is admissible, it will only in very rare cases be necessary to penetrate the interior wound in the soft parts.

In cases of compound fracture, the points can be introduced into the wound or through the uninjured soft parts, as may be most convenient. This, as a first treatment of fracture, may be found to be less painful than apparently more comfortable modes of dressing, obviating the movement of one fragment upon the other by the closeness with which the surfaces are brought together. Some periosteal inflammation must be excited, which, if it extends to the fractured lines, can only the more certainly result in bony formation, whether as a primary treatment or as a method of curing non-union. A slight exfoliation of bone may occur at the spot where the metallic point is made to press; but this is a trifling consideration in comparison with an increased efficacy in the treatment.

Fig. 1.



Modification of Malgaigne's spike, employed for delayed u nion in oblique fractures.

A single point may be applied by means of the metallic yoke and strap, as employed by Malgaigne, and where two or more points are to be applied on opposite sides of the limb, an apparatus may be constructed resembling the clamp used by ladies to fasten to a table any fabric for greater convenience in sewing upon it, or like some forms of tourniquet made to apply opposing pads by means of a steel

yoke approximated by some screw arrangement. The pads would for this purpose be replaced by points. The apparatus should be so arranged as to be capable of compressing the fragments as closely as may be necessary to keep them in apposition, and to hold them without any yielding whatever. There should be no elasticity in the retaining apparatus. (Fig. 1.)

If the pressure of the fragments upon each other is found to be painful to the patient, the screw may be loosened a very little, as a very small relaxation of pressure will be capable of affording relief.

CASE I. *Non-union of Tibia unsuccessfully treated by Drilling; afterwards successfully treated by Drilling followed by Compression of the Fragments by means of Malgaigne's Spike.*—Lt. Samuel L. Hamilton, Co. F, 19th Regt., Illinois Volunteers, on the 15th of May, 1862, had both fibula and tibia of the right leg broken, a short distance above the ankle, by being thrown from a wagon, lighting upon his feet. He was treated in the army hospital, and the patient says his surgeons had considerable difficulty in keeping the bones in proper position.

After a few weeks, a starch bandage was applied, and the patient went upon crutches. The fibula united by bony material, but the tibia remained ununited. Some deformity existed from the action of the muscles, sliding the lower fragment upon the upper and bending the fibula, bringing the outside of the foot to the ground.

Operation under Ether by Drilling, after Brainard's Method, Nov. 5, 1863, five months and twenty days from the date of the injury:—The fragments of the tibia were forcibly moved upon each other, and two holes were drilled through both fragments and the intermediate soft callus. The callus seemed, from the jumping of the drill, to be a-quarter of an inch in thickness.

A side splint was applied, extending from the upper portion of the tibia over the malleolus, around which the limb was firmly bandaged. The fibula thus received the whole force of the bandage on one side, while upon the other side, the force of the bandage was received upon the malleolus, and the upper portion of the tibia by the intermedium of the splint. In two

weeks the constant pressure had straightened the fibula so that there was no deformity. There was no perceptible motion between the fragments, and the splint was directed to be worn some time longer with the expectation of success.

This operation proved a failure, and the movement of the fragments upon each other became obvious enough.

Second operation: Drilling and the Application of Malgaigne's Spike, March 11, 1863, ten months from the injury, and four months from the previous operation:—A very obvious deformity had been reproduced. The muscles acting upon the fibula as a fulcrum, had bent it so as to bring the outer side of the foot to the ground, while the inner side was slightly lifted from it. The patient having been brought under the influence of ether, the fibula was forcibly straightened by interstitial breaking, or by bending with breaking of portions of the substance; after which a-quarter-inch drill was introduced between the fragments passing from below upward and backward, and freely rotated in the space between the two fragments, breaking up the soft intervening callus. The fragments were thus shown to be one-quarter of an inch asunder. A small probe was introduced and left as the drill was withdrawn. Three holes were then drilled through the anterior fragment and intermediate callus and into the posterior or lower fragment.

The limb was then put upon a posterior splint which was a double inclined plane, and the steel-point of Malgaigne's spike placed about an inch above the lower end of the upper fragment, through an incision made in the skin by a bistoury, the strap adjusted beneath the splint and the screw turned down until the probe left between the fragments was very firmly grasped by the approximation of the fragments. A light side-splint was applied on each side within the yoke holding the spike. The probe was then pulled out from between the fragments.

With slight adjustments from time to time this apparatus was worn without removal twenty-eight days. The patient took opium enough during the first few days to quiet pain. He was overtaken with a chill, to which he had for several months been

subject, after which he had the consequent fever, with a pulse of 120. He took quinia for this, and lager beer. As soon as he was free from his ague he discontinued medicine. Considerable swelling and suppuration occurred around the spike, which was not attended with much pain. The apparatus looked worse than it felt.

April 8th. The twenty-eighth day removed the dressing, and applied a tin side-splint.

17*th.* Applied a starch bandage, which was split on the 19th, and directed to be worn two weeks longer.

There is a node on the inner side of the tibia, exactly opposite the point occupied by the spike, as if periosteal inflammation had extended around the limb from the point of irritation by the spike. The minute exfoliations afterwards came out in the vicinity of the point pressed upon by the spike. Consolidation followed this treatment, without impairing confidence to the patient, who cautiously ventured to walk upon the limb. The patient left to rejoin the army the first of July.

(Fig. 2.)

Appearance of leg of Lieut. Hamilton, March 10, 1863.

(Fig. 3.)

Appearance of leg of Lieut. Hamilton, June 21, 1863.

(Engraved from Photographs.)

CASE II. *Ununited Fracture of Tibia and Fibula of three years' duration, with much Angular Deformity from Contraction of Muscles. Reduction of Deformity by Extension and Lateral Pressure—Drilling the Bones according to Brainard's Method, resulting in Bony Union without deformity or Lameness.*—Augustus Simpkins, of Pike County, Illinois, aged about thirty-five years, had a simple transverse fracture of the middle portion of the tibia and fibula of the right leg, by the fall of a tree.

There is said to have been much swelling and inflammation, and the skin was cut to let out the effused fluids. Cold applications were kept upon the leg, and the patient restricted to a low diet. No union by bone followed, and the angular deformity—the foot being carried out, making the leg look like a limb with a knock-knee—resulted gradually from muscular contraction. When the patient stands erect the toes only come to the ground, the lower portion of the leg being at an angle of 45° with the other leg.

Fig. 4.

A. Screw with its concave pad applied to the projecting angle of the leg. B. Hook for retaining the screw, making counter-pressure upon the splints. C. Long splint, which is the medium of extension. D. Back splint attached to the long splint, for aiding in securing the counter-lateral pressure.

June 12, 1861. The non-union has been of three years' duration. Applied the most powerful extension practicable by the lever arrangement of Jarvis' adjuster attached to the distal end of a long splint, the counter-extension being upon the ischium and groin, while lateral pressure was applied by a sort of tourniquet working with a strong screw.

Forcible working of the ends of the bones upon each other was practised by taking hold of the limb with the hands, and the tendo-Achillis was divided. With all this the limb was not restored to its straight position, and the apparatus breaking under the great strain applied, the process was stopped. The limb was dressed so as to retain as far as possible what had been gained.

After five days, not much inflammatory excitement had appeared, and the limb was subjected to another process. The bones were drilled from one fragment into the other in six places, taking different directions, all traversing the soft callus between the ends of the bones. The extension and lateral pressure were applied as in the first instance, only with stronger apparatus. The extension was from the ankle, by means of a roller applied around it to hold the loops. The limb was not only straightened by this operation, but the muscular resistance was so completely overcome that I bent the limb in the

opposite direction without difficulty. The thigh, leg, and foot were then placed in a side-splint, made of tin, and kept in it until the consolidation was complete, except when taken out for washing and friction to the skin.

In three weeks from the first operation he went home, a distance of 40 miles, riding about half the way in a buggy. The splint was worn about ten weeks. Perhaps it might have been laid aside sooner, but the patient, after three years' experience, was afraid to trust his limb too soon.

During the operation, a mixture of ether and chloroform was inhaled, and, to quiet the subsequent pain, morphia was freely administered. No other antiphlogistic treatment was resorted to than cathartics.

Fig. 5.

Fig. 6.

The above figures, engraved from the photographs, represent the appearances of the limb before treatment, Fig. 5; after treatment, Fig. 6.

The result in this case should lead us never to dispair of success, until after trials of means of cure. As the fracture of the tibia was transverse the interposed substance was subjected to great pressure by the contraction of the muscles, and there was no want of apposition to account for the non-union. It is suspected that the antiphlogistic treatment was too long continued. The fragments of the fibula became overlapped as the limb assumed the angular position, but when brought into proper relations by straightening the limb the fragments became united by bony substance.

The preceding figures (Figs. 5 and 6) represent the conditions before and after treatment.

Case III. *Drilling the Callus only, unsuccessful; Bony union afterwards induced by walking.*—In one case of simple oblique fracture of the upper portion of the lower third of the tibia and fibula by the falling of a tree, originally treated by me with great care by extension to avoid shortening or other deformity, the ossific union was delayed beyond the usual time. The callus was broken up by the insertion of a drill between the fragments of bone, but the hard bone was not drilled. This means failed up to the time when the patient, becoming impatient, placed himself in charge of another practitioner, who removed the splint and set the patient to exercising, bearing what weight he could upon the broken limb, after which bony union occurred with considerable deformity, the angle projecting forward.

Case IV. *Drilling the Callus only; its influence doubtful, but the case successful.*—In another case of oblique simple fracture of the tibia with fracture of the fibula, ossific union was delayed beyond the usual length of time.

A drill was inserted between the fragments, and the diet made more liberal, after which union occurred without deformity.

The patient attributed the delay of union to the cutting off of his daily drinks of whiskey; and perhaps he was right. As the accident occurred while he was drunk, it seemed a good time to reform; but the moral the patient drew from the delay of union was unfavorable to reformation.

I am led to think that the perforation of the callus by awls or drills, which do not penetrate the bony substance, is useless, and perhaps worse than useless, by breaking up its organization without influencing the bone and periosteum, whence the process of bone formation most readily proceeds.

Case V. *Drilling the Bone.*—Thomas Mulready, an Irishman of short stature, aged about thirty, had an oblique fracture of the lower third of the tibia, beginning two and a-half inches above the joint, and extending upwards and backwards with fracture of fibula.

I first saw the case three months after the injury, when there was forward projection of the upper fragment of the tibia, with a shortening of an inch and three-quarters. The fibula had united.

Four holes were drilled through both fragments and the intermediate soft callus. Side-splints made of cloth, saturated with an alcoholic solution of shellac, were applied and worn twenty-two days from the date of the perforation, when the fragments were found to have become consolidated. During a part of this time the patient was pretty well stimulated with whiskey and quinine.

The recovery was complete and permanent.

CASES VI. & VII. *Seton successful in two Cases.*—In 1848, I treated a case of non-union of the tibia successfully with the seton, and in 1851, a case of non-union of the humerus. In both these cases the seton was withdrawn at the end of two weeks, when the inflammatory action was supposed to be at its height. The success in both these cases was all that could be desired.

Summary. Seven Cases treated—two by Seton successful.—It is probable that the result is owing to increased vascular activity in the hard bone and periosteum, and not owing to any action set up in the callus itself.

Two by perforation of callus. This treatment is believed to be useless. The patients recovered, one from a resumption of his customary alcoholic stimulus, and the other from the stimulus of walking.

Three by drilling through the hard bone of both fragments. Two of these cases were successful on first trial; the other was unsuccessful at first, but afterwards successful when combined with compression by means of the metallic point impinging upon the projecting fragment.

Of the seven cases, all ultimately recovered; the two in which the callus was simply perforated would probably have done as well without the perforation.

Six of the cases were of the leg, and in all of them both bones were originally broken.

In four of the six cases, the fibula united while the tibia remained ununited. In two cases, the fibula remained ununited until the tibia finally united, but united at length without any treatment applied directly to the fibula itself. From this it appears that the fibula is more prone to unite than the tibia. Perhaps this is because the fracture is more likely to be transverse, on which account it is less subject to displacement, and because the tendinous and muscular investments hold the two fragments of the fibula together instead of tending to separate them, as is the case in oblique fractures of the middle and lower portions of the tibia.

One case of the middle portion of the humerus. The seven cases all ultimately successful.

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Note. Oct. 20, 1863.—Since this article was written, I have treated two cases of delayed or tardy union. Both of these cases were oblique fracture of the middle third of the tibia, with fracture of the fibula, the small bone uniting in the usual period.

In one of these cases the fracture was compound, and the spine of the lower end of the upper fragment projecting anteriorly, and rising one-third of an inch from its corresponding surface on the upper end of the lower fragment, and overlapping or shortning about half-an-inch; there was no bony union at the end of nine weeks. The spike was applied upon the exposed spine of the upper fragment, pressing it very firmly upon the lower fragment, after which bony union speedily occurred. The pressure by the metallic point removed deformity at the same time that it secured union.

In the other case there was no bony union at the end of twelve weeks from the date of the injury.

June 10. A starch bandage was applied, and the patient was set to walking with crutches, hoping to obtain union by the stimulus of exercise.

June 24. Fourteen weeks from the date of injury. No diminution of movement of the fragments upon each other, having been secured by this means, the bone was drilled.

In this operation a small drill was first made to penetrate between the fragments, from below upward and backward, through the whole oblique diameter of the bone, showing that the fracture, which had been supposed to be transverse, was oblique. This drill was left in position to serve as a guide for the place and direction of the holes to be made through the bony fragments. Four holes with a-quarter-inch drill were made through both fragments, traversing the soft callus between them.

A starch bandage was again applied. Two holes suppurated and two did not.

The patient wrote, date Oct. 4th: "I commenced to walk on the leg about the 20th of August, with a cane." (This is nearly ten months from the time of the drilling.) "I can now go without a cane, but I carry one. The leg is very hot at times and very sensitive; and if I step on a stick in the hollow of my foot it hurts, but in walking in smooth ground I experience no difficulty. My ankle is still weak, and that hurts more than the leg. That leg is a little the shortest."

It will be noticed in this case, that the stimulus of exercise with the limb in a dependent position from the 12th to the 14th week from the date of the injury, failed to diminish the mobility of the fragments upon each other. The ordinary period for bony deposit having passed by, it was difficult to reinstate the process of bone-formation.

ARTICLE XXXIV.

CASES OF CYANOSIS, ATTENDED WITH, AND PROBABLY DEPENDENT UPON, COLLAPSE OF THE LUNG.

By JOHN BARTLETT, M.D., of Chicago, Ill.

Read before the Chicago Medical Society, September 11, 1863.

CASE I. In July, 1858, Mrs. S. W. gave birth to a healthy child. On the eighth day it sickened. The mother attributed the symptoms to the bad quality of her milk. Before she bore a child, a tumor, said by her physicians to be hard cancer, had been removed from the breast. All of her other children, seven in number, had suffered as this one, and at the same age. In three cases, the disease had proved fatal.

The child was much emaciated. The general surface had been noticed occasionally to be of a dark red color, and the face of a purple hue. There was a severe diarrhœa. But the most prominent symptom was long-continued paroxysms of intense pain. Three convulsions were said to have occurred within a few hours past. Anodynes and astringents were given; a suitable wet nurse was obtained; liniments were applied to the chest; and the child was laid upon the right side. Thirty-six hours later, its diarrhœa continued, its tendency to convulsions was greater, and the cyanosis more decided. Occasionally the respiration was much hurried and labored; the respiratory movements, at one time, reaching eighty per minute. No very significant auscultatory phenomena were observed. A slight ronchus, and diminished respiratory murmur were constantly noticed on the left side. These signs were much more marked on some days than on others. The periods of greatest diminution of the murmur were not coincident with those of the greatest acceleration of breathing: on the contrary, puerile respiration was always distinct, whenever the breathing was rapid.

Probably, the exaggeration of the vesicular murmur in the healthy portion of the lung rendered inaudible the circumscribed diminished sound. It was during the hours of greatest

feebleness that the greatest embarrassment of respiration occurred. Some days of improvement followed the treatment; but all the symptoms returning, in an aggravated form, after ten days of illness, death resulted.

An autopsy, eighteen hours after death, revealed all the abdominal organs somewhat congested with dark blood; the intestines were congested in all their coats, but there was no evidence of inflammation.

Posteriorly, in each lobe of both lungs, but particularly in the middle lobe of the right lung, and in the lower lobe of both lungs, there were lobules in a state of carnification. This condition was mostly superficial; but in spots, it extended into the lung the width of the finger. Probably one-tenth of the substance of the organs was involved. Upon moderate inflation, the most of the affected lobules resumed their normal state, the greater number collapsing when the inflation ceased. Some could not be expanded.

The cavities and vessels of the heart were natural. The valve of the foramen ovale* was imperfect, presenting an opening of one-tenth of an inch in diameter. The ductus arteriosus was patent to the like extent.

CASE II. On the 26th of April, 1863, Mrs. J. D., a strong, healthy woman, aged about forty years, was attacked with violent spasms. She was, as was supposed, in the eighth month of pregnancy. As the convulsions occurred in lieu of an antici-

* This statement as to the deficiency of the valve is taken from notes written at the time of observation. The experience detailed below is sufficient to cause me to set aside that opinion. Probably, more careful study of the anatomy would have shown the valve perfect. I am the more disposed to this conclusion since Dr. J. R. ALLEN, then Professor of Obstetrics in the Iowa University, who witnessed the examination, expressed doubts as to the abnormal state of the parts in question.

In the examination of the heart, in the following case, I determined to make certain of its condition, especially in regard to the foramen ovale. The septum auricularum was viewed in many directions. The heart being held in the hand in a natural position, a current of water was directed against the left side of the septum, floating up the valve. The result of this unusually careful examination was the conviction that the valve was deficient in its anterior and inferior third: it was so recorded.

pated chill, and as no other cause for them, other than malarial influence, was discovered, antiperiodics were trusted to for relief. The result was entirely satisfactory.

On the 18th of May, after an easy labor, she was the mother of a small, feeble child. It did not breathe at once; but respiration was soon apparently well established. The infant was placed in a sheet and allowed to remain there half an hour. An unusual amount of phlegm was early noticed to pass from the air passages; it was found upon the pillow, or in the mouth of the child; occasionally a cough would extrude it. For the first few days, it was incapable of swallowing; but there was no serious difficulty in respiration, except when an attempt to excite deglutition by passing fluids into the fauces, suspended breathing for some moments, and cyanosed the child. These attacks of suspended respiration, after the first five days of life, came on independently of extraneous causes.

As the child lay quiet, the face would gradually become livid, the breathing apparently ceasing, and death seeming imminent. From careful study, it was established that this was a real choking, precisely similar to that produced by allowing fluids to pass into the throat. The exciting cause was the thick, tenacious phlegm above alluded to. When there was strength to cough this off, the paroxysms were arrested. When the swab removed it, animation was restored. In no instance, during these attacks, did the efforts of the nurse to dislodge this mucus entirely fail. The trachea contained it in abundance. Tubes passed into this passage came out covered with it. After two weeks, the violence and frequency of the paroxysms diminished.

Desiring to demonstrate to the members of the Society before which the paper was to be read the actual patency of the foramen, this arrangement was effected. The septum was laid, the left side downward, loosely over the end of a perforated cork, and secured in place by pins, at the margin. A gentle stream of water was then passed through the cork, from below upward; and, to the astonishment of all who had previously examined the heart, the valve sprang to its place, completely closing the foramen.

Conviction that this is not the first instance in which an imperfect examination of the valves of the heart has led to error, is my apology for giving the history of this mistake in detail.

After five weeks, they entirely ceased for a fortnight; but again recurring, the child sank, after seven weeks more of suffering. In the last hours of life, the respiration was hurried, and there were slight convulsive movements of the muscles of the eye.

During the three months of its existence, this child scarcely swallowed enough to sustain a vigorous infant one week; and yet its condition, as to flesh, was hardly changed from birth to death.

The patient was stimulated by external and, as far a practicable, by internal means. Several times, milk was injected into the stomach. Life was for the most part sustained by keeping the body swathed in cloths soaked in cod-liver oil.

An autopsy, ten hours after death, showed the brain and abdominal organs healthy. The lungs were mottled in color, the tints varying in lobules between a light yellow and a light red. There was nowhere the characteristic color of *recent* atelektasis. In the most dependent portions there was a line of *post mortem* engorgement. The anterior third of both lungs was healthy. The posterior two-thirds were more or less collapsed. The surfaces of these portions were irregular; nodulated in lobules—the lobuli were not in the same plane. Some of these were normal; some contained a little air, and others were completely carnified. A moderate inflating force, sufficient to expand the healthy lung of an adult, failed to fill the collapsed portion. Some of the lobuli filled well; others imperfectly; many not at all. The heart was normal—the ductus arteriosus was closed, and the valve of the foramen ovale was perfect, but not adherent in the anterior inferior third of its circumference.

REMARKS.—The original difficulty in the first case was probably indigestion, and consequent diarrhœa and debility: the collapse of the lung following as a consequence of the loss of that physical force necessary for the performance of the respirtory act.

In the second case, from birth there was a lack of vitality. The child could neither swallow nor cough efficiently; its bowels were torpid. This general feebleness invited a collapse of lung

tissue, which in turn was a cause of congestion, and of effusion into the respirtory organs—a cumulation of difficulties which could hardly terminate otherwise than in death.

Doubtless many cases of transient cyanosis occurring in infancy, commonly referred to irregularity of the heart's action, are examples of collapse of the lung. The following case, kindly furnished by Dr. GROESBECK, is supposed to be of this character. In a note to the writer, Dr. G. says:—

"The child was naked, the surface cool, skin pale, lips livid; respiration feeble and imperfect, with a mucous rale. While looking at it, the breathing suddenly ceased, the face and lips became more livid, and the child seemed to be dead. In a few moments after, it gasped, and gradually a feeble respiration was established, and the cyanosis disappeared. The physician who arrived before me, finding the throat filled with mucus, had made an effort to dislodge it by means of the finger; tickling the throat with a feather; and turning the child upside down. He then endeavored to inflate the lungs; used the warm bath; and applied hot mustard water to the surface freely.

"This attendant having treated the patient very heroically, I, in accordance with medical usage, adopted an entirely opposite mode of treatment. The child being naked I left it so, but had it wrapped up in warm flannels. Adopting Dr. MEIGS' suggestion in cyanosis, I had the child laid upon the right side, and ordered it to be kept so and not to be disturbed by moving or dressing. I had some food put into a nursing-bottle, and the nipple gently introduced into the child's mouth. It took a teaspoonful, and then had an attack of what I shall call syncope. These faintings occurred frequently during this and the ensuing day. The third day, the child appeared so much better that I had it put to the breast. It nursed vigorously; and from that time recovered. The question now is: What was the cause of this condition? My own opinion is, that it was imperfect expansion of the lungs, ending in collapsed lung and a partial resumption of fatal circulation. The causes that are supposed to favor, or bring about this condition are, among others, speedy birth and exposure to cold, both of which occurred in this case,

as the child was suddenly propelled from the brim of the pelvis into the world by one continuous pain. The nurse had not yet arrived; and the child was wrapped in a muslin skirt and laid aside for her to dress. The morning was chilly. The nurse did not arrive until two hours after the birth of the child.

"Here we have two supposed, primal, causal conditions in full action. Dr. JORG says, that in a sudden birth the child does not have the 'besoin de respirer;' and that the fœtal circulation continues in a degree, and consequently the respiration is feeble and insufficient to inflate the lungs; and then we have the train of symptoms which occurred in this case. The depressing effect of cold, enfeebling the respiration, the lungs collapsing gradually from want of air to expand them, would be very likely to establish the fœtal circulation so recently stopped, and the child would exhibit the phenomena stated above."

ARTICLE XXXV.

THE THERAPEUTIC PROPERTIES OF BROMIDE OF AMMONIUM.

By IRA HATCH, M.D., of Chicago.

Communicated to the Chicago Medical Society, Oct. 9, 1863.

The *London Lancet* for April, 1863, contains a notice of the bromide of ammonium.

Dr. GIBB recommends it highly in nervous affections, in diseases of the mucous membranes, and in epilepsy.

It will be recollected that in a communication to this Society, a few months ago, I expressed the opinion that remedies would yet be found that would act far more effectively as sedatives upon the mucous surfaces, than any hitherto known to the profession. If Dr. GIBB'S statement with regard to the bromide of ammonium may be relied on, or if it should be confirmed by further experience, a very important discovery, looking to this end, has already been attained. He says, that "the mucous membrane of the whole body is brought more or less under its

control. Trembling, nervousness, and general uneasiness quickly subside under its use. It calms irritation, and allays nervous irritability."

Soon after this account of the bromide fell under my eye, I had some cases which I thought would test the value of the medicine.

One was a case of chronic liver complaint, of long standing, complicated with a diseased condition of the mucous membranes. The patient had had fits of indigestion, vomiting of bile, a sallow skin, and irregularity of the bowels for a long time. She had had chronic bronchial asthma for at least twenty years. She had been subject, from a child, (she is now over forty years old) to distressing turns of sick headache, with vomiting, fainting, and palpitation of the heart. During these paroxysms of headache, the dyspnœa, dizziness, blindness, and numbness were really alarming. Succeeding one of these paroxysms, she had hemiplegia, which lasted several weeks, but finally wore off under the use of counter-irritants to the spine, and the internal use of nux vomica. But it left her nervous, restless, and constantly apprehensive of another attack.

She is a married woman, but has never borne children. The catamenia have always been defective; menstruation sometimes irregular, and at other times painful or altogether wanting.

In order to allay nervous irritation, I gave her bromide of ammonium, in two grain doses, four times a-day. It promptly relieved the nervous irritation, and produced a calm quiet. She was inclined to sleep more than usual.

At present she is taking no medicine regularly. Her health is better apparently than it has been for several years. When she feels particularly nervous, she takes a dose of the bromide, which is not often necessary. I do not anticipate any very lasting benefit. There is too much organic disease to expect it. But the experiment shows the sedative properties of the remedy.

The fungous granulations of the throat and back part of the tongue have very much diminished in size and improved in appearance. But this may not have anything to do with the

bromide. I may add here, that she has been greatly benefited by the ext. nux vomica and quinine and iron, to which I mainly attribute the present improved condition of her health.

Another case in which I have used the brom. amm. was a woman thirty-nine years old, fifteen years married, but had never borne children. She is of a nervo-sanguineous temperament, the latter temperament largely prevailing.

A considerable portion of the time since puberty she has been the victim of dysmenorrhœa and leucorrhœa, with occasional turns of dyspepsia. The bowels have generally been constipated. She never has been anæmic or emaciated; but her countenance has generally been indicative of health.

Last fall she became pregnant. In March, the seventh month of her pregnancy, she took hooping-cough, which ultimately produced uterine hemorrhage, followed by pains; and she was delivered of a still born child on the 3d of April last.

The labor, as well might be expected, was tedious and painful. The os uteri was somewhat rigid and excessively sensitive. The pains, though light, distressed her exceedingly. Her recovery was slow and tedious.

She lost her strength and appetite, and became very nervous. She had fits of swooning, evidently of a hysterical character. She laughed and cried in the same breath. She would not be left alone in her room for a moment. Yet there did not seem to be any adequate cause for such nervousness. There was no fever; no tenderness of the abdomen; lochia slight; and no leucorrhœa. Pulse, respiration, and skin natural.

The bowels were constipated, and every evacuation prostrated her wonderfully, and aggravated all her nervous symptoms. No hemorrhoids discoverable. At this time, with no other view than to allay nervous irritability, I prescribed

℞.—Bromide Amm., ... ℥ij
Syr. Prun. Virg., ... ℥iv.

Dose, one teaspoonful every six hours.

The effect was most gratifying. A moderate leucorrhœa immediately made its appearance.

She rested well the first night and ever afterwards. She

had no more fainting fits or palpitation. Her recovery, from this time, was steady, uniform, and complete. In June, she went East, where she spent the summer; and I saw no more of her till ten days ago, when I was called to visit her for another complaint.

After her sickness, which was temporary, had subsided, I investigated the old complaint, and found that she had menstruated freely, without pain, and had experienced none of her old troubles, with the exception of a slight leucorrhœa, which, on inspection by the speculum, was found to issue from the neck of the uterus, and was thick, tenacious, and transparent.

She told me in the presence of a homœopathic lady, that she had a remedy in the bromide of ammonium that would control the pain and nervousness which had tormented her so long, and for which she had never before found any relief, except by opium; and that destroyed her appetite, and generally made her sick for a week afterwards. She is an intelligent lady, and I think her testimony is worth something. She is one of the kind, too, who never have had much faith in medicines, being homœopathically inclined.

The medicine seemed to act, as a direct sedative, upon the mucous membrane of the cervex uteri, much in the same manner as cleavers act upon an irritated urethra, or as buchu acts upon the bladder. It allayed the local irritation, and the constitutional symptoms disappeared.

The patient had been tormented for years with painful menstruation and uterine leucorrhœa. The primary difficulty was located in the neck of the uterus. Dr. TYLER SMITH says, (what we all know to be true) that the mucous membrane of the upper portion of the neck is sometimes remarkably sensitive; and is nearly as intimately connected with the mental emotions as the lachrymal gland.

This accounts for leucorrhœa from mental excitement. The hysteria, palpitation of the heart, and other nervous symptoms of our patient were the result of the excessive irritability of the upper portion of the neck or inner sphincter, usually called the os internum. In nervous irritable women, rendered so by

uterine troubles, is not the point of irritation situated in this portion of the cervix uteri? This portion is highly organized, and is always sensitive, even in the healthy woman; made so, undoubtedly, to guard the sacred enclosure within.

A highly organized, sensitive part becomes doubly so whenever the action of such part becomes diseased. The os internum sometimes becomes very irritable in pregnancy; causing obstinate vomiting, and other distressing nervous symptoms. It would seem, sometimes, as if this part of the neck were the centre of nervous sympathy in the female. Not only the stomach but the uterus itself and the ovaries are powerfully influenced by any disturbance of this part. It is well known that a very slight but continued artificial irritation of the os internum will cause abortion. Nothing more is needed than to pass through it a smooth elastic tube, and let it remain till pains come on. In amenorrhœa, depending upon certain local causes, the tube is a sovereign remedy. In vicarious menstruation this course is certain to restore the natural mentrual flow.

Some years ago, I saw a striking exemplification of this truth, in a lady long afflicted with vicarious menstruation. Each menstrual period was preceded by the most distressing symptoms of congestion of the lungs; followed by a true catamenial secretion from the lungs, (unless prevented by treatment.) The patient had been many times copiously bled, and subjected to a variety of treatment. She was pale, thin, nervous, and hysterical; thus verifying the assertion of Dr. PREECH, of Paris, that "in all cases of vicarious menstruation which had been carefully observed, antecedents either of hysteria, or of an exaggerated sensibility, have been noticed."

In this condition, she put herself under the care of Dr. KIBBEE, of Springfield, Mass. He treated the case by introducing the tube every month; anticipating the menstrual period, generally, a day or two.

She always menstruated, per "*vias naturales*," within forty-eight hours after the introduction of the tube. She eventually recovered, and is now well and hearty.

I introduce this case to show the effect of irritation of the os

internum, when produced artificially. Does not menorrhagia sometimes arise from irritation, owing to a morbid condition of the os internum? Do not abortions often arise from the same cause? Does not dysmenorrhœa almost always arise from an excessive sensitiveness, and consequent spasmodic contractility of the os internum, which is in fact a sphincter? Do not puerperal convulsions, especially those of a hysterical character, sometimes arise from the same cause?

Judging from the effect produced by artificial irritation of the os internum, we may infer that like effects would ensue from a morbid condition or irritation of this part. Any remedy that will allay irritation in this centre of sympathy in the female, would be of inestimable value. I do not pretend to say, that bromide of ammonium will do it. It requires further trial. I *think* it applicable in all cases of nervous females, where the nervousness arises from uterine irritation. It may extend to all irritations of mucous surfaces.

IMPROVED METHODS OF TREATMENT IN DEFORMITIES.

By E. ANDREWS, A.M., M.D., Professor of Surgery in Chicago Medical College.

In previous articles, I have figured and described several pieces of apparatus, which I use for the cure of spinal curvatures. There are numerous other appliances which are valuable adjuvants to the main treatment, among the most important of which is what the German surgeons call the "stretch-bed." This machine consists of a couch with various appliances at the head and foot for making extension and counter-extension upon the spinal column; by means of which, like a string put under tension, the curves of the spinal column are drawn gradually straight. The first successes obtained by this invention produced quite a furor in its favor in Europe; and its popularity was such as to occasion the satire, that "many seemed to

imagine that nothing more was necessary to constitute an orthopedic surgeon than a stretch-bed and patients."

The extending power in this machine consists of springs or weights and pulleys, applied both at the head and the foot of the bed, the weights being preferable. The upper extenders were applied to the head, in case of high curvature, and to the shoulders when the difficulty was lower down. The lower extension was applied to the bulge of the hips or to the feet. The patient was not usually required to remain continuously in the machine, but was placed in it, at intervals, from two to four times a-day; but the more time he could spend in it, without injurious loss of exercise, the more rapid was his improvement.

Although the extravagant admiration at first felt for the stretch-bed has greatly subsided, it still remains as a very valuable instrument, which no one undertaking the treatment of spinal curvatures can afford to do without. It may be specially and elaborately constructed for hospital purposes, or be extemporized out of an ordinary bedstead in private practice. For hospital purposes, the bedstead may be made of wood or iron. It should be not less than eight feet in length, by three and a-half in breadth. The great length is required to make space above the head, and below the feet for elastic straps and other extending appliances. There should be no head nor foot board, but instead of them a long roller of wood, three inches in diameter, extending from post to post, across the head and foot of the machine, and turning easily on iron axles. Above each roller should be a strong crossbar of wood, into which iron pullies may be set in various positions, as the surgeon may from time to time desire. The mattress should be of curled hair, rather hard, and made level and smooth. Pillows and bolsters can be varied according to the necessities of the case.

For temporary use, in private practice, a stretch-bed may be improvised out of the ordinary bedstead, by cutting openings through the head and foot boards, and setting in some small cast-iron or brass pulleys, such as may be found in any hardware store.

If the deformity is in the upper portion of the spine, an ex-

tension is attached to the head, by means of a firm leather band, moulded to the occupit, and provided with two branch straps, one to cross the forehead, and the other to pass under the point of the chin. This must be very carefully constructed, or else it will be too irksome to be borne, but when well fitted, it is borne without pain. A short band passes upward from each side of the head, and attaches to a cord which is passed over the pulley and supports a weight. The counter-extension is made by a cord and weight at the foot of the bed, in a similar manner, and may be attached to the patient either by adhesive straps applied to the legs, or by a strong waist buckled around the bulge of the hips. The weights should vary from five pounds upward, according to the ability of the patient to tolerate it. If this apparatus is properly constructed and applied, the patient will enjoy free motion both of upper and lower extremities, and can turn on his back, his face, or either side, without interfering with the extension, or rising from the bed. No effort should be made to keep the patient continually on the stretch-bed, except in cases where he is unable to sit or walk. He should resort to the bed from two to four times a-day, and remain from half an hour to an hour and a-half each time. The remainder of the time he should either wear a proper supporter—such as I have described in a former article,—or be occupied by gymnastic exercises calculated to correct the deformity. Some patients will be able to sleep in the stretch-bed after a little practice. In these cases they should by all means do so, as it adds the whole of the sleeping hours to the treatment, and very much hastens the recovery. If the deformity is below the sixth dorsal vertebra, the upper extension should be applied to the armpits and chest by proper pads in the axilla, and by broad adhesive straps upon the back and chest, attached to the extending cord. When properly used, the stretch-bed exerts a very powerful influence in unfolding spinal curvatures, and the worse the deformity the more striking are its results. One of the most prominent symptoms of improvement is the surprising increase of stature which the patient exhibits as the spinal column comes out to a correct line.

GYMNASTICS.

The cure of some forms of curvature of the spine, and of all anchylosed joints, is greatly promoted, and may be entirely accomplished, by proper specific exercises, either active or passive. It is almost impossible to introduce this part of the treatment fully into general practice, on account of the amount of time required to be spent with the patient, either by the surgeon, or by a trained assistant, but parts of it will be found useful to every practitioner. The exercises are active and passive, the former being executed by the patient's own muscles, and the latter by the hand of the surgeon. Thus, for instance, if the patient has a slight double lateral curvature, and he be directed to elevate the shoulder on the side of the concavity of the upper curve (usually the left,) and depress the opposite one, and to curve the spine in the direction opposite the deformity, the practitioner at the same time guiding and assisting the motion with the hands, it will be found that the spine is momentarily restored to its normal shape. If she now repeat these motions with the same assistance many times, until fatigued, every day, the muscles which are thus trained will acquire a prodigious development, and their antagonists remaining undeveloped, they gain the mastery, and by their own superior tension ultimately correct the deformity. The bones and ligaments yield slowly to the pressure, until their shapes are perfectly restored. This is the principle of Ling's Swedish "Movement Cure," which, in a debased and spoiled form, is now hawked about the country, by sundry quacks. Some additional exercises are performed in most cases. Thus a cushioned post is prepared, and set firmly in the floor, across the top of which the patient is made to lean, and by repeated efforts of the surgeon, is made many times in succession to flex the curved spine, in the direction opposite that of the deformity.

Anchylosed joints are treated by constantly repeated exercises, both active and passive, until by degrees the fibrous bands are elongated, and mobility established. A vast number of other exercises have been devised by various orthopedists, some of which are useful and some not, but the principles involved are the same throughout.

STATE OF ORTHOPEDIC SURGERY IN EUROPE.

Dr. LING, of Stockholm, was one of the earliest lights in orthopedy. His system of treatment consisted mainly in the series of gymnastic exercises alluded to above. He gave a strong impetus to the treatment of deformities; and his institute was under the patronage of the government for forty years. Sundry rags and tatters of his ideas, under the name of the "Swedish Movement Cure," constitute the stock in trade of numerous American quacks.

WILDBERGER, of the Orthopedic Institute in Bamberg, mostly discards Ling's gymnastics as useless, because they are very unsuccessful in spinal diseases. This is, in a great measure, true, Ling's exercises being better adapted to diseases of the extremities than of the spine. WILDBERGER, on the contrary, gives most of his attention to spinal deformities, and treats them mainly by a variety of splints and supporters, which slowly and steadily force the curvatures back to a straight line. His apparatus is thorough and efficient in its action, and has the merit of allowing the patient to walk about and exercise while it is worn; but most of it is complex and clumsy in structure, being in striking contrast, in that respect, with American instruments.

Dr. MELICHER, of Vienna, has an orthopedic institute, in which he does, or at least did, a few years ago, rely almost exclusively upon Ling's gymnastics.

Dr. BEREND, of Berlin, has an establishment in which he treats his patients by tenotomy, or other surgical operation, when required, and by the stretch-bed and other machinery, after which he completes the cures by gymnastics alone.

Dr. SCHREBER, of the Leipsic Orthopedic Institute, treats his patients upon a stretch-bed, of which the extending force is produced by steel springs. The bed is also provided with lateral steel springs, to press in the convexities of the curved spines. His institute is but little patronized.

Dr. KJŒLSTADT, of Norway, has complex system something like the following. He first places his patient upon a stretch-bed, during certain hours. Then taking him up, he places him in a peculiar machine, in which he marches him with short

steps around the room. Then laying him down, he kneads the joints and muscles with his fists, and then returns him to the stretch-bed again. He is said to possess very little adaptive power, treating all kinds of cases alike.

Dr. ROTH, of London, has an institute, in which he follows Ling's method, combined with the Russian bath,—that is a bath having a series of sudden alternations between hot and cold water.

Dr. NITZSCHE, of Dresden, takes complete possession of his patients, occupying their whole time with curative measures, making extensive use of gymnastics and electricity. Spinal curvatures go through the following course:—In the morning, he first washes the patient's back with cold water; then laying him on his face, he rubs him down with alcohol, and proceeds to knead and press the back in a systematic manner. He then practices the sufferer on motions to straighten the spine by the action of his own muscles. Next comes a series of exercises in which the spine is stretched between rollers, and the patient is made to swing by his hands, head, &c., &c. All this is the morning lesson. In the afternoon it is repeated, and the evening is occupied with gymnastics; after which his patients are said to sleep well. If they are not cured it certainly is not for want of diligence.

Dr. KLEPSCH, of the Breslau Institute, uses stretch-beds, electricity, and a variety of instruments for club-feet, and other deformities.

Dr. KNORR, of Munich, takes substantially the same course, adding to it, however, a system of gymnastics and of water cure.

Dr. PARROW, of the Orthopedic Institute, in Bonn, has a kind of chair constructed for straightening the spine. He also makes use of a great variety of apparatus, among which are pulleys, springs, and sundry handles pendent from the ceiling, upon which the patient practices swinging by one or both hands, as the case requires.

Drs. EBENER & GROSSMAN, of Stutgard, regard instruments as indispensible, employing stretch-beds, corsets, supporters, &c., and adding also active and passive gymnastics.

Prof. WERNER, of the Gymnastic Academy, of Dessau, employs corsets, supporters, stretch-beds, and baths, together with active gymnastics, but condemns the passive gymnastics as useless. In this, however, he is certainly in error, as the passive movements are very often the only ones which are possible at the commencement of the treatment.

STATE OF ORTHOPEDIC SURGERY IN THE UNITED STATES.

In this country, the cure of deformities is an almost completely neglected art. A few good men are zealously cultivating it in the larger Eastern cities; but in the West, it has only just begun to receive attention. For this reason, the whole country is filled with neglected spinal curvatures, bent knees, uncured club-feet, and anchylosed elbows. Many of these cases are perfectly curable, even when of many years' standing, and should be at once taken in hand. The cases of spinal deformity are especially to be commiserated, because they are usually taught to look upon their state as hopeless; whereas, a large portion of them are capable of being restored to soundness and perfect form. It is the hope of the writer, that these articles may arouse the attention of our surgeons to their duty; and prevent these cases from being turned over to the maltreatment of lying, itinerant quacks.

GONORRHŒAL OPHTHALMIA.—This formidable affection yields with marvellous rapidity to repeated weak injections. In the most acute cases a solution of a-quarter of a grain of nitrate of silver to the ounce of distilled water should be injected beneath the upper lid, with a syringe, every ten minutes, for the first hour; after that, a-half grain solution should be injected every half-hour. If this is carefully carried out for the first 24 hours, the patient's eye will be quite safe. A stronger solution may then be used, but less frequently, and in a couple of days, if the villous condition of the conjunctiva should seem to require it, Guthrie's ointment of nitrate of silver may be used. These weak solutions are quite useless unless very frequently applied; but if so used, scarcely an eye need be lost from gonorrhœal ophthalmia. (Dr. M. H. Collins, page 183.)

Selections.

EMPLOYMENT OF POSITION IN CONTROLLING HÆMORRHAGE.

By FRANCIS B. QUINLAN, M.D., Trin. Coll., Dublin.

Pain, shock to the nervous system, and hæmorrhage may be fairly considered the principal sources of immediate difficulty and danger in the actual performanceof extensive surgical operations; and as the all but universal employment of anæsthetic agents has, to some degree, neutralized the first two impediments, it may be of advantage to recur to a plan of diminishing venous hæmorrhage, which employed and described in the year 1845, has since been frequently resorted to, although not always with due acknowledgment to Dr. O'Farrell of St. Vincent's Hospital, the distinguished surgeon by whom this plan was first devised. It will be admitted that, while most cases of arterial hæmorrhage are susceptible of comparatively easy control, there is scarcely any bleeding so rapid, so tremendous, or so alarming in its effects as that experienced in the removal of large scrotal tumors, when the enormous tortuous veins, usually found in connection with these growths, have been divided while in a state of repletion; and it is to guard against such hæmorrhage that the plan to which I have alluded is especially directed.

The accuracy of these statements will be easily established by a brief review of some operations of the kind which have been performed with and without having recourse to this plan.

In the first of these cases, a large scrotal tumor, weighing about fifty pounds, was removed by the late Mr. Liston, the veins being in an engorged condition. Upon the first incisions being made, the blood flooded out, to use the words of that celebrated operator, "as from a shower-bath;" the patient rolled in exhaustion and agony from the table, and the operation was completed upon the floor; the patient collapsed, and was with difficulty restored by the energetic exhibition of stimulants. In Mr. Ashton Key's operation, performed upon the Chinese Hoo-Loo, the results were similar, but from the feeble Asiatic temperament of the patient, more disastrous. The operation lasted an hour and three-quarters, and the patient, who had shown some signs of syncope during its continuance, died immediately after its conclusion. It may be observed that in both these

cases the genital organs were necessarily sacrificed in an effort to hurry the operation to a conclusion, in order to save the patient from impending death from hæmorrhage.

Results of this character, occurring in the hands of some of the first operators of the day, were sufficiently appaling; and it speedily became evident that, unless some means could be devised to diminish this excessive hæmorrhage, the removal of such tumors must, like the extirpation of bronchocele, be for the present abandoned. It was, therefore, with peculiar satisfaction that the profession learned, in the *Dublin Hospital Gazette*, of February, 1845, that a method of operation had been devised by Dr. O'Farrell, by means of which he had removed an enormous scrotal tumor (fully equal to those removed be Liston and Ashton Key) without difficulty, in eight minutes, and with the loss of only five ounces of blood; the genital organs being preserved, and the patient having made a good recovery, notwithstanding attacks of erysipelas, and various other unfavorable circumstances. Such an announcement could not fail to be in the highest degree gratifying; and it became all the more so when it was found that the importance of Dr. O'Farrell's plan of operation was only equalled by its extreme simplicity. Observing the great change produced in turgid varicose veins of the leg by placing the patient upon his back and elevating the limb, and the immediate arrest of hæmorrhage from such veins which ensues upon the adoption of this position, it occurred to Dr. O'Farrell that, if the enlarged scrotum were held up, a similar withdrawal of the vital fluid would take place, particularly as regards the enlarged and tortuous veins which were the principal sources of hæmorrhage.

The result completely justified the accuracy of this expectation—the more so as the hæmorrhage in these cases had been always observed to be principally of a venous character; the arterial hæmorrhage, in Ashton Key's case, being estimated to be scarcely one-twentieth of the whole.

Since the publication of Dr. O'Farrell's plan, a complete change had occurred in these operations, which have since been performed in rather considerable number, and with an ease and success more or less resembling that experienced in his case. I now recur to the plan, because in two instances of operation, published during the present year, (in one of which an Asiatic was the subject,) it apears to me that the able and successful operators, although adopting the method, omitted, in their reports of the cases, to make due acknowledgment to the author; contrasting, in this respect, with Mr. South, who, in his splen-

did work on Surgery, gives due prominence to Dr. O'Farrell's plan.

The application of this method is by no means limited to the removal of large scrotal tumors. On the contrary, it has been resorted to by Dr. O'Farrell in cases of considerable innocent tumors of a vascular character; and in amputations he has obtained great advantages by loosely applying the tourniquet, elevating the limb, emptying it of venous blood by manipulation, and then tightening the tourniquet. The limb can thus be kept in a state of comparative anæmia while the amputation is being accomplished; and a loss of blood can be prevented, which, by deteriorating the general quality of the vital fluid, might lay the foundation of much subsequent disease. In fact, the value of a position by which the entrance of arterial blood into a limb will be retarded, and the exit of venous blood facilitated, is almost as useful in the performance of an operation as in the treatment of inflammation.—*London Medical Times and Gazette.*

Book Notices.

A Practical Treatise on the most Obvious Diseases Peculiar to Horses, Together with Directions for their most Rational Treatment; Containing, also, some Valuable Information on the Art of Shoeing Horses. By George H. Dadd, V.S., Author of "Anatomy and Physiology of the Horse," "Modern Horse Doctor," etc., etc., and Principal of the Veterinary School of Chicago. Chicago: S. C. Griggs & Co. New York: Blakeman & Mason; C. M. Saxton. 1863.

We are pleased, in looking over this work, to see the steady advance Veterinary Medicine is making. Idle notions of disease are being set aside, and the Veterinary Surgeon, calling to his aid scientific modes of investigation, and acting in the light of facts in human pathology and therapeutics, is rapidly placing his work on a plane parallel with ours.

We commend the book to all interested in horses; and the physician may find in it some useful hints. For instance: one of Dr. Dadd's patients was a "regular hysterical subject during the menstrual periods, uncontrollable and amaruotic;" the diseased ovaries are removed, and a permanent cure follows. Here

is material for the pathologist and therapeutist, and especially for the psychonosologist.

THE PRINCIPLES AND PRACTICE OF OPHTHALMIC MEDICINE AND SURGERY. By T. WHARTON JONES, F.R.S., Prof. of Ophthalmic Medicine and Surgery in University College, London; Ophthalmic Surgeon to the Hospital, etc.; with One Hundred and Seventeen Illustrations. Third and Revised American Edition, with Additions, from the Second London Edition. Philadelphia: BLANCHARD & LEA. 1863.

This is a neatly executed volume of 455 pages octavo, the author of which, is already well known to the profession. It is an excellent practical treatise on the Medical and Surgical Diseases of the Eye; and is well adapted to the wants, both of the student and the practitioner.

For sale by W. B. KEEN & Co., 148 Lake Street, Chicago.

SYNOPSIS OF THE COURSE OF LECTURES ON MATERIA MEDICA AND PHARMACY, Delivered in the University of Pennsylvania; with Three Lectures on the Modus Operandi of Medicines. By JOSEPH CARSON, M.D. Third Edition Revised. Philadelphia: BLANCHARD & LEA. 1863.

This is an octavo volume of 244 pages, containing a simple outline or rather skeleton of the course of lectures given by Dr. CARSON in the University of Pennsylvania. It is specially designed for the use of students attending that school; and certainly the greater part of its contents can possess very little interest or value to any one else. The only part of the work of real interest to the general practitioner, is the last 38 pages, comprising three lectures on "the Operation of Medicines through the medium of the Nervous System, and by Absorption." These three lectures are published in full, and contain a very interesting summary of facts and opinions in relation to the highly important subject under consideration.

For sale by W. B. KEEN & Co., 148 Lake Street, Chicago.

A REPORT ON HOSPITAL GANGRENE, ERYSIPELAS AND PYÆMIA, AS OBSERVED IN THE DEPARTMENTS OF THE OHIO AND CUMBERLAND. With Cases Appended. By M. GOLDSMITH, Surgeon U. S. V. Published by permission of the Surgeon-General of U.S.A. Louisville. 1863.

This is a very interesting report or monograph of 95 pages,

bound in cloth. The subject discussed is a very important one, and the facts presented in this paper cannot be studied too closely. We have not time or space to review the work in the present number of the EXAMINER, but shall refer to it again soon.

Editorial.

CLINICAL CASES IN THE MEDICAL WARDS OF THE MERCY HOSPITAL.

During the past two months, the wards of the Mercy Hospital have been unusually crowded with patients laboring under the most severe and important forms of disease; and the senior class of students in the Chicago Medical College have enjoyed most excellent clinical advantages. During the discussion of continued fevers, in the College, they were enabled to observe in the Hospital, directly at the bedside, the symptoms, progress, and treatment of twelve cases of typhoid fever: illustrating almost every aspect of that disease, with its varied complications.

One of these cases so strikingly illustrated an important practical idea, that we will briefly relate it:—

Mr. —, a native of Ireland; aged about 35 years; laborer; was admitted into the Hospital with typhoid fever, complicated with pneumonic inflammation, involving the middle and lower lobe of the left lung. He had been sick about four days previous to his admission. At that time his face was flushed; lips dry and red; tongue covered with a thick coat, reddish brown and dry in the middle; skin dry and moderately hot; pulse 110 per minute, and soft; abdomen slightly tympanitic, and bowels loose—the discharges being thin and occurring every two or three hours; respiration short and frequent, being somewhat stifled by an acute pain in the infra-axillary region of the left side; some cough and expectoration tinged with blood. Dulness

on percussion and sub-mucous rhonchus existed over all the lower half of the left side of the chest. As the typhoid condition of the patient was well marked, and the first stage of the pneumonic inflammation already passed, the treatment directed for the patient was as follows, viz.:—To restrain the typhoid looseness of the bowels, one fluid drachm of the following emulsion was given every four hours:—

℞.—Ol. Terebinth,..... ℥ij.
Tinct. Opii,..... ℥ij.
Pulv. G. Acacia, ...
Sacchar. Alba, ... } ℥iij.
Aqua Menthæ,..... ℥ij. Mix.

To relieve the pain in the side and counteract the pneumonic inflammation, a blister was applied to the left side of the chest, and one of the following powders given every four hours, alternated with the emulsion:—

℞.—Pulv. Opii, ... 10 grs.
Pulv. Sanguinaria, ... 6 grs.
Hydrag. Chlorid. Miti, ... 6 grs.
Sacchar. Alba, ... 30 grs.

Mix and divide into six powders.

Beef tea and milk porridge were directed for nourishment.

At the end of the first 24 hours of the treatment, the calomel was omitted from the powders, and two grains of quinine substituted in its place; but in all other respects the treatment was continued, without change, until the morning of the fourth day. The patient appeared then much improved. The abdomen was not tympanitic; and no movement of the bowels had occurred during the preceding 24 hours. The tongue and skin were moist, and the pulse 90 per minute and soft. There was no pain in the side, except on coughing or taking a forced inspiration, but the left side was still very dull on percussion, with some mucous rhonchus, and expectoration slightly tinged with blood.

The symptoms altogether were so much improved that the previous medicines were discontinued, and a simple anodyne expectorant ordered, as follows:—

℞.—Comp. Honey of Squills, &c.,..... ℥j.
Tinct. Sanguinaria, ... ℥ss.
Tinct. Opii et Camph., ... ℥jss.
Mix, and give a teaspoonful every three hours.

Continued animal broth and milk porridge for nourishment. This treatment was ordered on Saturday and continued until Monday, when the clinical class met in the Hospital for the usual hour of instruction at the bedside. On approaching the bed of the patient, it was evident at a glance that he had undergone a decided change since our previous visit. The countenance was expressive of anxiety and restlessness; the face was suffused with a dark purplish redness; the pro-labia were leaden color; the skin on the extremities cool, and capillaries congested; the respiratory movements irregular and feeble; the pulse small, variable, and intermitting; and the impulse of the heart weak. There was constant mental wandering or delirium, with moderate subsultus. The whole left side was dull on percussion. Three or four thin, fecal evacuations had occurred during the preceding 24 hours, with an evident impairment of the action of the sphincter ani. It was evident from the foregoing symptoms, that the patient was rapidly tending towards a fatal degree of depression. By a careful analysis of the symptoms before the class, it was rendered evident that this depression consisted mainly in a failure of the nervous centres, more especially of those of the excito-motory system of MARSHALL HALL, as indicated by the enfeebled respiration and circulation; and in impaired contractility of the muscular tissues, with imperfect decarbonization of the blood. The enfeebled action of the heart, accompanying such a condition as here described, and occurring during the progress of typhoid fever, is highly dangerous, and not unfrequently productive of unexpectedly fatal results. To counteract this condition, the liberal use of alcoholic stimulants is very generally resorted to by the profession. And if the lungs are free from obstruction, they will sometimes produce the desired effect. But their constant tendency to retard atomic changes in the tissues, and lessen the elimination of carbonic acid gas from the lungs, renders them inapplicable and often

positively injurious in such cases as the one under consideration, in which pneumonic obstruction exists throughout the whole of one lung and the blood very imperfectly decarbonized. Does the materia medica afford us any remedy which, by its efficient action on the involuntary nervous centres and on the contractility of the muscular and fibrous tissues, is specially adapted to the present case? The therapeutic properties of strychnine are such as to render it more perfectly applicable to the treatment of such a case than any other remedy with which we are acquainted. For several years, we have been in the habit of resorting to it in all cases of typhoid disease, during the progress of which there occurred unusual depression of the excito-motory nervous functions, as indicated by feebleness of respiration, feebleness of the heart's action, and impairment of the sphincters; and generally with prompt benefit. In the present case, we directed the emulsion to be continued in doses of one fluid drachm every four hours, with two grains of tannate of quinine in each dose; and the strychnine to be given alternately with it, as follows:—

℞.—Strychnine, ... 1 gr.
Nit. Acid, ... ℥j.
Water, ... ℥ij.

Mix, and give one teaspoonful in a little sweetened water every four hours. Continue beef-tea and milk porridge for nourishment.

In twenty-four hours the heart's action had become steady and uniform, although the pulse was still small and weak. The expression of countenance and the respiratory movements were also improved; but the delirium and sleeplessness continued, with much dulness in the left side, and expectoration tinged with blood. The bowels continued quiet. The strychnine and nitric acid solution was continued, but, instead of the emulsion and quinine, he was directed a powder of pulv. Doveri, 8 grs., and pulv. g. camph., 2 grs., between the doses of strychnine, and an additional blister to the side. From this time the delirium steadily diminished; the patient had intervals of quiet sleep; the respiration and circulation improved daily; and in

one week from the time he commenced the strychnine he was convalescent; although there remained some dulness over the left side, with moderate cough and expectoration. These disappeared during the succeeding week, under the use of mild anodyne expectorants, and the patient was discharged.

Case II.—Mr. C., aged about 25 years, was admitted into ward No. 7, Mercy Hospital, Nov. 21st, complaining of severe aching pains in his head, back, and limbs, with a harsh bronchial cough, accompanied by a sense of soreness and constriction in the central part of the chest. The tongue was partially covered with a white fur; the skin dry and above the natural temperature; pulse 95 per minute, moderately firm; respirations slightly increased in frequency; and bowels quiet. On close inquiry it was found that distinct rheumatic inflammation and swelling existed in the ankles and knees, and in one wrist. But neither auscultation nor percussion afforded any evidence of the existence of pneumonic inflammation. Regarding the case as one of sub-acute rheumatism complicated with bronchitis, we directed a powder composed of eight grains each, of pulv. Doveri and nit. potassa, with two grains of calomel, every four hours; and a mild anodyne expectorant between. On the 22d, the symptoms were not materially changed, and the same treatment was continued, with the addition of a saline cathartic. On the 23d, the clinical class visiting that ward, examined his case minutely; and their attention was called to the fact that it represented a class of cases at that time occurring in the city with unusual frequency. And in some of which the inflammation, after four or five days, seemed to extend suddenly from the bronchial ramifications to the lobules of the lungs, causing great dyspnœa; a small and very frequent pulse; leaden hue of the lips; great feeling of weakness; and in a few hours, extensive dulness on percussion, with coarse mucous rhonchus.

In a few of these cases, the air cells have become so rapidiy and universally compressed, that the patients have died, with symptoms of apnœa, within 24 hours after the first indications of pneumonic congestion. In another class of cases, the patients, instead of complaining of rheumatic pains and swellings

in the articulations, have exhibited the symptoms of an attack of simple catarrh, with some cough and sense of tightness in the chest for three or four days, but not sufficiently severe to prevent them from being up and attending moderately to their ordinary duties. Then a very acute pain would attack the sub-axillary region of one side, greatly aggravated by a full inspiration or a cough, and accompanied by a moderate grade of general fever. At first, neither auscultation nor percussion indicated any decided change in the lungs. But within 24 hours, a crepitant or sub-crepitant rale became plainly audible over the whole lower lobe of the lung, with moderate dulness on percussion, and bloody expectoration. If not promptly checked by treatment, in 24 hours more, the whole of the affected side would become dull on percussion; a sub-mucous rhonchus equally extensive, with expectoration more largely mixed with blood; the breathing laborious; the pulse from 120 to 130 per minute, soft and weak; the lips leaden color; the skin moist; and extremities cool; with dulness of mental faculties, and great sense of exhaustion. In a very few cases, both lungs became involved almost simultaneously, and produced a fatal result in less than 48 hours. In a large majority of the cases, however, the disease remains limited to one lung, and the patients slowly recover.

The class were informed that although there were no alarming symptoms then present in the case before them, yet, from the extent of the bronchial inflammation, and the known tendency of similar cases to extend suddenly to the lobules of the lungs, a very cautious prognosis must be given.

Believing the pulmonary inflammation, like that in the articulations, to be rheumatic in its nature, the patient was directed the following treatment:—

℞.—Vin. Colchici Sem., ... ℥j.
Acetum Opii,..... ℥ss.

Mix, and give 30 drops every four hours, alternately with a powder containing pulv. Doveri eight grains, nit. potassa eight grains, and calomel one grain.

The next day, the 24th, the cough was less severe, and the

pains in the limbs less, but otherwise the symptoms remained the same. The same treatment was continued.

On making the visit at the usual time, 1 o'clock P.M., on the 25th, the aspect of the patient was entirely changed. A complete apoplectic engorgement of both lungs had ensued; causing great difficulty and shortness of breathing; a cool skin; livid face and lips; pulse weak, irregular, and small; mental faculties dull; and a coarse mucous ronchus, with dulness on percussion all over the chest.

No further treatment had any effect upon him; he died before the next morning.

The following interesting letter was received too late to go into the original department of the present number.—[Ed.]

ICE AS A THERAPEUTIC AGENT IN AFFECTIONS OF THE THROAT.

By M. K. TAYLOR, Surgeon U. S. Vols., and Professor of Theory and Practice of Medicine in the Medical Department of the Iowa State University.

Prof. N. S. Davis,

Dear Sir,—I have noticed several paragraphs in the public journals lately, referring to the employment of ice, by some French gentleman, whose name I do not at this moment recollect, in certain affections of the throat. His mode of applying the ice seems to be that of allowing it to be dissolved slowly in the mouth, or of swallowing it that it might be dissolved in the stomach. I have no doubt of its efficacy in many cases when thus used. There are many instances, however, and particularly in infants, when it is difficult to secure any such favorable results, because of the want of coöperation on the part of the patients. A more practicable mode, and one with which I have been very favorably impressed, after some four or five years' trial, is that of its external application to the throat, in nearly all of the local inflammations of that region, not connected with the eruptive fevers.

I have used in both inflammatory and spasmodic croup, in

diphtheria, tonsilitis laryngitis, œdema of the glottis, and I assure you of my belief that we possess no remedy so effective, and at the same time so manageable, as the external application of ice to the larynx or parts higher up, when thus inflamed. Its powerful sedative impression is observed in a very short time directly upon the morbid process, while there is a general sedation seen in the diminished action of the heart and loss of temperature, with a corresponding modification of febrile excitement upon the continuance of the application of the remedy. In infants, I have seen it control the croupy respiration in a very few minutes, and that too when time is of the utmost importance, as in the severe forms of the spasmodic variety. In diphtheria, it does not always arrest the exudation of false membrane, but the ice will diminish the amount thrown out, and assuage the local pain and swelling very much. In the earlier stage of tonsilitis it will often arrest the disease, always modifies and lessens the inflammatory action, and prevents, to a very considerable extent, the suppurative process. In some cases, however, when repeated suppurative inflammations have occurred in the tonsils before, it has not always arrested the formation of an abscess—perhaps it might have done so if applied in an earlier stage of the disease. My mode of application has been to secure a piece of ice, the size of a hen's egg, so shapen as to adapt itself to the form of the neck, upon each side of the larynx, or as near the seat of inflammation as practicable; and for tonsilitis immediately to the sub-maxillary region, upon one or both sides, as the case might require.

I have generally adjusted the ice by enveloping it in a single thickness of oiled silk so that it could not slip from its proper place, by adjusting it saddlewise over the larynx, and then envelope the whole neck with several thicknesses of flannel, with the view of preventing the temperature of the surrounding air from contributing to any extent in dissolving it. When the ice seems to be no longer required, the moderate application of cold water will prevent too great reaction, and the lighting up anew of the morbid action.

It does not, or at least I have not relied upon it solely with

that view, do away the necessity of other treatment; but I have generally employed such medication as the circumstances seemed to demand for the arrest of the disease, with only this precaution: that antimony and viratrum be administered sparingly, lest too great depression be obtained.

It will be recollected that the ice lies closely upon the larger vessels of the neck, and that the greater part of all the blood sent to and returning from the brain comes more or less under its influence; and that the sedative effect of the small quantities thus employed is much more marked than when a considerable larger quantity is applied to the whole cerebrum.

I have not time to prepare notes of cases, if I were so disposed, because of the pressure of my public duties; nor do I consider it particularly necessary to ensure the trial of the remedy by the profession at large. The known sedative action of cold is too well appreciated by the profession to require such demonstration.

I have not employed it in those anginose affections of the throat connected with scarlatina, lest it might interfere with the appearance of the eruption; though in a desperate case, when other remedies had failed, I should do so, and seek to counteract any unpleasant effect by friction to the surface, and artificial heat to the remote parts. I have seen no unpleasant effects from its use, though I can readily conceive that on young infants, without proper care, its action might be carried too far.

GLEANINGS FROM THE FRENCH JOURNALS.

By the Editor.

Influence of Steam on Lead.—M. Lermer, in Dingler's *Polytech. Journ.*, has published an interesting article on the corroding influence of aqueous vapor on lead pipes. This effect is found to greatly increase in proportion to the purity of the lead. By alloying the lead with tin, the action of the vapor is much reduced, and at a minimum when the lead is but 37 per cent of the mass.—*Jour. de Chim. Med.*

Arsenic in Sulphuret of Antimony.—An ounce of the black sulphuret of antimony was given to twenty-four sheep, of which

number ten died. On examining the sulphuret by Wackenroder's process, M. Reynolds discovered 1.[redacted]per cent of sulphuret of arsenic.—*Jour. de Chim. Med.*

Iodide of Iron and Quinia, crystalized.—M. Smedt believes that he has obtained this salt perfectly definite. He prepares it as follows: Take of sulphuret of barium a sufficient quantity. Make a concentrated solution in water, precipitate it by tincture of iodine, filter to separate the sulphur, and add 30 parts of sulphate of quinia dissolved in concentrated alcohol.

Sulphate of baryta precipitates and iodide of quinia remains dissolved in the alcohol and communicates to it a deep yellow color; thrown on a filter, the sulphate of baryta is washed with alcohol, the liquors, united and evaporated, yield the iodide of a beautiful orange yellow color; lastly, 12 parts of iodine are transformed into a concentrated solution of iodide of iron, to which the alcoholic solution of iodide of quinia is added, and heated on a water bath. As the alcohol evaporates, the liquor assumes a beautiful green color, and a small quantity of dark green resinous matter separates. Towards the end of the evaporation a little alcohol is again added, filtered, and left to crystalize; the crystals are expressed strongly and dried.

The iodide of iron and quinia obtained by this means is in long needles of a beautiful yellow color, completely soluble in boiling water, and not precipitating on cooling. This salt dissolves in cold alcohol and ether, is without odor, and has a bitter and ferruginous taste. In fact, it presents all the characters of a perfectly definite compound, but its composition has not been verified by analysis.—*Jour. de Chim. Med.*, Sept. 1863.

Falsification of Essence of Mace.—M. de Letter has noticed a fraud which consists in substituting an alcoholic tincture of nutmegs for the essential oil. This product has a golden yellow color, and is very fluid, two properties which are not characteristic of the essential oil of mace. Besides, this pretended essence mixes with water, rendering it slightly lactescent, like tincture of nutmegs, which in color resembles the fraudulent essence. A few drops of the latter tested with bichromate of potassa and sulphuric acid developes instantly the green coloration dug to alcohol.—*Bul. Soc. de Pharm. de Brux.* et *Jour. de Chim. Med.*

Syrup of Balsam Copaiba.—M. Ed. DuMay (*Jour. de Chim. Med. Aout*, 1863) gives the following receipt for this syrup:—

Take of Balsam of Copaiba, of Cayenne,...	167	grammes.
Calcined Magnesia,.....	9	"
Simple Syrup,.....	320	"
Yolk of Egg, fresh,.....	4	

Triturate the yolk of eggs with the magnesia, and add afterwards and mix intimately the copaiba, and finally the syrup. This preparation keeps well.

Casein Cement.—Dr. Wagner recommends the employment of a cold saturated solution of borax or of silicate of soda, to dissolve casein in preference to the alkaline carbonate indicated by Braconnot. The solution of casein by borax is a clear liquid, of viscid consistence, more adhesive than gum, and able to replace in many cases strong glue. Stuffs of linen and cotton impregnated with this solution can be treated with tannic acid or acetate of alumina and rendered impermeable. Marsden, in his *History of Sumatra*, has shown that the chief cement employed in that country is made from the curdled buffalo's milk, and called *prackee*. To prepare it, the milk is abandoned to itself until the cream becomes butter, which is removed by a spoon and washed with water for use. The residual liquid of the milk is sour and thick, and it is this that they call *prackee*. They press it strongly so as to get it into the form of cakes, which are dried and become excessively hard. When it is to be used, a certain quantity is scraped off, mixed with quick lime in powder and moistened with milk. The cement thus obtained is extremely solid, and resists perfectly hot and humid climates a great deal better than glue; it is specially good for cementing porcelain.—*The Technologist. Jour. de Chim. Med.*

The following recipes for mineral salts have been translated from the Report of MM. Bussy, Grandeau and Baudrimont, to the Commission revising the French Codex:—

Sulphate of Protoxide of Manganese.

Take of Black Oxide of Manganese (natural),..... 1 part.
Commercial Proto-sulphate of Iron,..... 1 "

By contusion and trituration make an intimate mixture and heat in an earthen crucible to ordinary redness. The mass being cooled, pulverize it and exhaust it with boiling water and evaporate to dryness. Redissolve the residue in hot water, filter and evaporate and crystalize.

This salt is very soluble in water, and should not be colored blue by yellow prussiate, nor black by sulphuretted hydrogen, after adding acetate of soda.

Chlorate of Soda.

Take of Crystalized Tartaric Acid,..... 150 parts.
Carbonate of Soda, crystalized,..... 143 "
Chlorate of Potassa,..... 121 "

Dissolve the tartaric acid and carbonate of soda separately, in convenient quantities of hot water, and add little by little the solution of carbonate, to that of the acid in a capsule sufficiently large to prevent the liquid from loss by effervescence. When this last has ceased, agitation causes the deposition of the bitartrate of soda.

On the other hand, dissolve the chlorate of potassa, in twice its weight of boiling water, and mix this solution with the magma of the bitartrate of soda resting in the capsule. Carry the whole to ebullition, and add enough of water to dissolve and allow it to cool completely. Filter the liquor to separate the precipitate of cream of tartar which forms. Evaporate the filtrate, nearly to dryness, and stir it to avoid loss by decomposition. When cold lixiviate the granular salt with four or five times its weight of cold water, agitating to facilitate solution, and when there only remains a granular crystalline residue which refuses to dissolve, filter and evaporate to one-fourth, and set aside to crystalize.

Thus made, this salt ought not to blacken when heated on platina foil, and should but slightly trouble a solution of nitrate of silver. It is soluble in three times its weight of cold water. 122 parts of chlorate of potassa yield 106 parts of chlorate of soda.

Hypermanganate of Potassa.—$KO, Mn^2 O^7$.

Take of Binoxide of Manganese, finely pulverized and washed,..... 10 parts.
Caustic Potassa, well fused,..... 12 "

Put them in a cast iron basin, add a little water, sufficient to render the mixture pasty, dry rapidly, stirring constantly with a strong iron spatula whilst heating over the fire, to remove all humidity; introduce the grumous mass obtained, into a tubulated earthen retort, and lute in its tubulure a large green glass tube, descending nearly to the bottom of the retort. Place the retort in the upper part of a laboratory furnace, adapt to its neck a curved tube, which should dip two centimetres into mercury. Pass through the tube, dipping into the retort, a current of oxygen deprived of carbonic acid gas, at the moment when the retort has attained a dull, red heat. The action is terminated when the oxygen is disengaged freely through the tube dipping in the mercury, or when it ceases to disengage watery vapor.

The retort is now cooled, emptied, and the contents lixiviated

with a sufficient quantity of warm water. Pass into the liquor thus obtained, a current of washed carbonic acid, until the solution has taken the characteristic violet tint of the hypermanganate. Allow it to repose 24 hours, decant and rapidly evaporate it without ebullition to the proper degree, that, by cooling, it will make a good crystallization of hypermanganate. The mother waters are evaporated whilst they yield prismatic crystals by evaporation. They are carefully dried, avoiding the contact of organic matter.

100 parts of binoxide, yield 35 to 40 parts of permanganate in the first crystallization.

This salt is in beautiful prismatic needles, of a bronzed and violet black. It should be entirely soluble in water. Its solution of a magnificent violet becomes green by alkalies.

ROYAL HUMANE SOCIETY'S INSTRUCTION'S.

DIRECTIONS FOR RESTORING THE APPARENTLY DEAD:

I.—*If from Drowning or other Suffocation, or Narcotic Poisoning.*—Send immediately for medical assistance, blankets, and dry clothing; but proceed to treat the patient *instantly*, securing as much fresh air as possible.

The points to be aimed at are, first and immediately, the restoration of breathing; and second, after breathing is restored, the promotion of warmth and circulation.

The efforts to restore life must be persevered in until the arrival of medical assistance, or until the pulse and breathing have ceased for at least an hour.

TREATMENT TO RESTORE NATURAL BREATHING.

RULE 1.—*To maintain a free entrance of Air into the Windpipe.*—Cleanse the mouth and nostrils; open the mouth; draw forward the patient's tongue, and keep it forward: an elastic band over the tongue and under the chin will answer this purpose. Remove all tight clothing from about the neck and chest.

RULE 2.—*To adjust the Patient's position.*—Place the patient on his back on a flat surface, inclined a little from the feet upwards; raise and support the head and shoulders on a small firm cushion, or folded article of dress, placed under the shoulder-blades.

RULE 3.—*To imitate the movements of Breathing.*—Grasp the patient's arm just above the elbows, and draw the arms gently and steadily upwards, until they meet above the head, (this is for the purpose of drawing air into the lungs), and keep the arms in that position for two seconds. Then turn down the

patient's arms, and press them gently and firmly for two seconds against the sides of the chest, (this is with the object of pressing air out of the lungs. Pressure on the breast-bone will aid this.)

Repeat these measures alternately, deliberately, and perseveringly, fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to induce circulation and warmth; (*as below.*)

Should a warm bath be procurable, the body may be placed in it up to the neck, continuing to imitate the movements of breathing. Raise the body in twenty seconds in a sitting position, and dash cold water against the chest and face, and pass ammonia under the nose. The patient should not be kept in the warm bath longer than five or six minutes.

RULE 4.—*To excite Inspiration.*—During the employment of the above method, excite the nostrils with snuff or smelling salts, or tickle the throat with a feather. Rub the chest and face briskly, and dash cold and hot water alternately on them.

*** The above directions are chiefly Dr. H. R. Silvester's method of restoring the apparently dead or drowned, and have been approved by the Royal Medical and Chirurgical Society.

TREATMENT AFTER NATURAL BREATHING HAS BEEN RESTORED.

RULE 5.—*To induce Circulation and Warmth.*—Wrap the patient in dry blankets, and commence rubbing the limbs upwards, firmly and energetically. The friction must be continued under the blankets or over the dry clothing.

Promote the warmth of the body by the application of hot flannels, bottles or bladders of hot water, heated bricks, &c., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet. Warm clothing may generally be obtained from the bystanders.

On the restoration of life, when the power of swallowing has returned, a teaspoonful of warm water, small quantities of wine, warm brandy-and-water, or coffee, should be given. The patient should be kept in bed, and a disposition to sleep encouraged. During reaction, large mustard plasters to the chest and below the shoulders will greatly relieve the distressed breathing.

II.—*If from Intense Cold.*—Rub the body with snow, ice, or cold water. Restore warmth by slow degrees. In these accidents it is highly dangerous to apply heat too early.

III.—*If from Intoxication.*—Lay the individual on his side on a bed, with his head raised. The patient should be induced to vomit. Stimulants should be avoided.

IV.—*If from Apoplexy or Sun-stroke.*—Cold should be applied to the head, which should be kept well raised. Tight clothing should be removed from the neck and chest.

APPEARANCES WHICH GENERALLY INDICATE DEATH.

There is no breathing or heart's action; the eyelids are generally half-closed; the pupils dilated; the jaws clenched; the fingers semi-contracted; the tongue appearing between the teeth; and the mouth and nostrils are covered with a frothy mucus. Coldness and pallor of surface increase.

SCLEROTITIS AND IRITIS.—The plan of internal administration of morphia in acute cases of sclerotitis, continues to be as successfully pursued as heretofore. At the commencement of a case, doses of a-quarter of a grain should be given, cautiously increased to one-third or even half a grain, but in some young or feeble subjects it is well to begin with one-fifth of a grain. The patient should be directed to take one dose every third hour; but on the pain becoming less, to increase the interval of the doses to four or five hours, or even to leave off the medicine altogether. The degree of pain should be the guide as to the length of interval. A mercural purge and tonics may be required at the termination of the case. In a few cases, morphia causes violent symptoms of stomach derangement and depression; in others it produces these effects but in a slight degree; in such cases the drug is inadmissable, except in very small doses. Where there is iritis, belladonna should be applied locally. The important practical fact seems established, that morphia is, *per se*, a powerful antiphlogistic, capable of curing those acute inflammations of the eye in which, up to the present time, blood-letting, blistering, and mercurialisation have been considered necessary. The explanation of this remarkable action of morphia in reducing abnormal fulness of the vessels of the sclerotic, we may find in the relations of pain to vascular congestion. It is generally considered that the pain is the effect of congestion, but it is quite an open question whether, in certain classes of cases, the order of things may not be reversed. (Dr. J. C. Lawrence, page 175.)

INVESTIGATIONS TOUCHING THE USE OF IODINE.—Dr. Rosenthal, assistant physician at the Vienna General Hospital, has published, in the *Wiener Med. Wochensch.*, a series of papers containing much original matter touching the therapeutic use of iodine. The summing up is as follows:—

1. Large doses of iodide of potassium, combined with a small

quantity of fluid, remain a long time in the economy; with large quantity of fluid, they are quickly washed away from the system, and pass rapidly into the secretions and excretions. This circumstance should be carefully noticed.

2. When iodide of potassium is taken internally, it is found not only in the urine, saliva, and other secretions, but also in the alvine evacuations, within from four to seven hours, whether the stools be aqueous or the reverse.

3. In the administration of iodide of iron, iodine is separated in considerable quantities, and found with a large proportion of the iron in the urine. Fæcal matter contains much iron and a small amount of iodine. The same phenomena may be noticed when iodide of mercury is used.

4. Frictions with an ointment containing iodide of potassium upon sound skin will cause the iodine to be detached in the urine and saliva.

5. Iodine is found in the urine of those who take baths in which iodide of potassium is dissolved, even when the rectum and urethra are kept free from the action of the bath. This is proved by examining the urine, and by noting a large diminution of the iodine in the water used for the bath.

6. The intestinal mucous membrane takes of the iodine very energetically in the form of enemata, and this is the case even with very weak solutions of iodide of potassium.

7. Large doses of iodide of potassium, or small doses taken for a long time, are not well borne in certain pathological states of the economy; in fact, large doses of iodine, or concentrated solutions, are very prejudicial to the system.

Inquests of 1862.—The coroners' returns show that 20,591 inquests were held in England in the year 1862—a number slightly below the average—14,198 on males, and 6393 on females. There were 221 verdicts of murder, 207 of manslaughter, 1284 of suicide, 2429 of "found dead," 157 of death from want, cold, and exposure. The number of inquests held on children under seven years of age was 6002—1107 of the number on illegitimate children; and there were 3239 inquests on infants not more than a year old, of whom 839 were illegitimate. This is the first year in which the children of illegitimate birth have been distinguished in these returns. More than a-sixth of the children on whom inquests were held were illegitimate, more than a-fourth of the infants not above a year old. The verdicts of wilful murder numbered 124, more than half of which related to children not more than the age of twelve months.

HEALTH OF SAN FRANCISCO.—*Comparative Mortality for the Two Years ending respectively August* 31, 1862 *and* 1863.

The total number of deaths for the month of August was 163, being 17 less than for the preceding month. 95 were recorded in the Lone Mountain cemetery, of which 23 were under three years; 66 in the Roman Catholic burying ground, of which 23 were under three years; and 2 in the Jewish cemeteries. The principal causes of death are recorded as follows: Consumption; 12; lung diseases, 3; brain diseases, 6; apoplexy, 2; heart diseases, 3; fever, 2; typhus fever, 2; enteritis, 1; dropsy, 2; cholera infantum, 2; sore throat and diphtheria, 6; croup, 1; scarlatina, 2; dentition, 2; whooping cough, 3; measles, 2; erysipelas, 1; debility, 4; paralysis, 3; still born, 15.

The following is a comparative table of mortality for the two years ending respectively August 31, 1862 *and* 1863:—

1861.		1862.	
September,	164	September,	170
October,	153	October,	173
November,	165	November,	167
December,	195	December,	179
1862.		1863.	
January,	173	January,	162
February,	218	February,	151
March,	207	March,	192
April,	174	April,	157
May,	152	May,	173
June,	160	June,	175
July,	199	July,	180
August,	222	August,	163
Total,	2183	Total,	2040

REMARKS.—Notwithstanding the steady increase of our population, it will be perceived that there was 143 deaths less, for the year ending August 31, 1863, than in the preceding year.

The average monthly mortality for the year ending August, 1862, was 182; for the last year it was only 170. Of the 2040 who died during the last twelve months, 551 were children under 3 years of age, and 140 still born.

During the last year, the highest monthly mortality was in March—192; the lowest in February—151. During the previous year, the highest monthly mortality was in August—222; the lowest in May—152.

If we estimate our present population at 100,000 our rate of mortality has been less than 1 in 49; showing a degree of salubrity which may be advantageously compared with that of any large city in the civilized world.—*Pacific Med. & Surg. Jour.*